

VERMONT AGENCY OF AGRICULTURE

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PLANT INDUSTRY DIVISION

NOSEMA DISEASE

Nosema, the most common adult honey bee disease, occurs in most, if not all Vermont apiaries. Caused by a protozoan parasite, this stress disease will reduce a colony's effectiveness in gathering honey and in pollinating. The spores or resting stage of the disease are ingested by adult bees. After they germinate into the destructive vegetative stage, the protozoa will attack the walls of a bee's stomach and intestine. Later, the organism goes back into the spore stage where it passes from the bee in fecal matter. Spores are eventually ingested by healthy bees, and the cycle repeats. Transmission is usually through contaminated food and water, contact with other bees, or by bees cleaning combs that infected bees have soiled. Workers, queens and drones are all susceptible to Nosema.

SYMPTOMS: There are no definitive symptoms of this disease. However, at times, affected bees may show the following abnormalities:

1. Bees unable to fly, seen crawling at the entrance and on the ground in front of the hive.
2. There may be an absence of the stinging reflex.
3. The abdomen of an infected bee may appear swollen and shiny.

EFFECTS: Being a stress disease, Nosema will usually not kill a colony by itself, but it will weaken the bees in varying degrees. Infected adult bees do not live as long as healthy bees. An infected colony's ability to collect nectar and pollen is thus diminished, as is the ability of infected nurse bees to feed the brood. Populations of these colonies will dwindle, especially in the winter months as some adults will be dying naturally of old age and they will not be able to be replaced by bees that die early from Nosema. When queens are infected with Nosema, their egg laying capacity will be decreased and they will possibly be superseded.

CONTROL/MANAGEMENT PRACTICES:

1. If you suspect your bees have Nosema, feed the medication Fumidil-B in a minimum of two gallons of sugar syrup in the fall, and a minimum of one gallon of sugar syrup when a new package is installed in the spring. This will prevent and/or suppress the disease. Do not feed this medication just before or during a honey flow. Follow the directions supplied with the medication for mixing.
2. To keep stress at a minimum, place colonies in optimum apiary sites. Locations should have good air drainage, protection from prevailing winds, and the hives should be able to receive some sun on their front sides during the winter months.
3. Make sure all colonies have a prolific queen and a large population of young bees in the fall.
4. If the frame top bars are discolored with dark residues of fecal matter in the spring, scrape this off with a hive tool and dispose of it. Diseases may be carried here, and this sanitation will help cut down on re-contamination.

